



**BOTANICAL AND PHYSICO-CHEMICAL STANDARDIZATION OF COMPOUND  
FORMULATION – “ITRIFAL SHAHATRA”**

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**ABSTRACT**

The unani system of medicine prescribes large number of classical herbal formulations to cure the different types of diseases. Itrifal shahatra a unani herbal formulation is prepared in combination of herbal ingredient like Shahatra (*Fumaria parviflora* Lam.), Post-e-Halela Zard (*Terminalia chebula* Retz.), Post-e-Halela kabli (*Terminalia chebula* Retz.), Post-e-balela (*Terminalia bellerica* Roxb.), Sana (*Cassia angustifolia* Vahl.), Gul-e-Surkh (*Rosa damascena* Mill.), Maweez Munaqqa (*Vitis vinifera* Linn.). The unani physician prescribes the drug Itrifal shahatra to cure the ailments of Aatishak (Syphilis), Dawar (Virtigo), Fasad-ud-dam (Putrefaction of blood), Kharish (Scratching of skin), Suda (Headache). There is a lack of standardization and proper documentation of unani drugs. To evaluate the pharmacopoeial standards of drug, various parameters like powder microscopy, physico-chemical parameters like ash value, extractive value, pH value and HPTLC are performed. The evaluated data will help to lay down pharmacopoeial standards for the drug Itrifal shahatra.

**KEYWORDS:** Itrifal shahatra, powder microscopy, physico-chemical, HPTLC.

**INTRODUCTION**

Itrifal is a semisolid preparation where one or more single drug of plants, animal or mineral origin is mixed in powder form. Itrifal shahatra is one of the ancient commonly used classical formulations. Itrifal shahatra is dark brown semi-solid preparation with characteristic smell and taste. Itrifal shahatra is one of the important unani formulation categorized under the Majooniath categories, listed in the National Formulary of Unani Medicine, Part-1. The drug Itrifal shahatra is prescribed for the ailments of Aatishak (Syphilis), Dawar (Virtigo), Fasad-ud-dam (Putrefaction of blood), Kharish (Scratching of skin), Suda (Headache).<sup>[1]</sup>

This polyherbal formulation consists of seven ingredients like Shahtara (*Fumaria parviflora* Lam.), Post-e-Halela Zard (*Terminalia chebula* Retz.), Post-e-Halela kabli (*Terminalia chebula* Retz.), Post-e-balela (*Terminalia bellerica* Roxb.), Sana (*Cassia angustifolia* Vahl.), Gul-e-Surkh (*Rosa damascena* Mill.), Maweez Munaqqa (*Vitis vinifera* Linn.).<sup>[2]</sup>

In order to lay down the pharmacopoeial standards, the drug was prepared in laboratory scale and subjected to microscopical studies and physicochemical studies. The

present paper describes the salient features of powder microscopy, physicochemical studies like ash value, extractive value, and pH value and HPTLC.<sup>[3]</sup>

**MATERIAL AND METHODS**

The preparation of drug includes procurement of raw drugs, identification and authentication, removal of adulterants if any, powdering to required sieve size, method of preparation, ash determination, extractable matter determination, identification, storage, maintenance, testing, preparation of reagents, standardization, raw data etc.<sup>[4,5]</sup>

**i) Ingredients authentication:** The raw ingredients were procured from local market and identified by the botanist using pharmacognostical method.

**ii) Drug formulation:** Itrifal shahatra was prepared in three batches as per the formulation composition given in National formulary of unani medicine Part-1.

**Formulation Composition:**

S.No.	Unani name	Botanical name <sup>[6]</sup>	Part used	quantity
1.	Shahtara	<i>Fumaria parviflora</i> Lam.	Whole plant	50g.
2.	Post-e-Halela Zard	<i>Terminalia chebula</i> Retz.	Fruit rind	50g.
3.	Post-e-Halela kabli	<i>Terminalia chebula</i> Retz.	Fruit rind	30g.
4.	Post-e-balela	<i>Terminalia bellerica</i> Roxb.	Fruit rind	20g.
5.	Sana	<i>Cassia angustifolia</i> Vahl.	Leaf	10g.
6.	Gul-e-Surkh	<i>Rosa damascena</i> Mill.	Flower	5g.
7.	Maweez Munaqqa	<i>Vitis vinifera</i> Linn.	Fruit	350g.

iii) **Powder Microscopy:** Take 10-15 grams of compound drug and stir carefully with hot water in a beaker; discard the residue than repeat the process; take the small amount of sediment in a slide and mount with glycerin; take a small amount of residue than treat separately with chloral hydrate than wash with distilled water and mount with glycerin and observe the following characters under microscope.

iv) **Physicochemical analysis:** The physico-chemical methods viz., moisture content, ash value, solubility in different solvents, pH values etc. were useful tools in standardization of a herbal product for maintaining the batch to batch consistency. The drug samples were subjected for the standardization of physicochemical parameters and analyzed as per the standard methods.<sup>[7]</sup>

v) **HPTLC Profile: Sample preparation:** After leaching out sugar from the drug, 2g sample was extracted by sonicating with 25 ml of Ethanol for about 20 minutes. The extract was filtered and concentrated up to 10 ml and used as test solution.

**RESULT AND DISCUSSION**

Itrifal shahatra was dark brown semi-solid preparation with characteristic odor and taste. The polyhedral formulation consists of five ingredients like - Gul-e-surkh (*Rosa damascena* Mill.), Post-e-halela zard (*Terminalia chebula* Retz.), Post-e-halela kabuli (*Terminalia chebula* Retz.), Shahatra (*Fumaria parviflora* Lam), Post-e-balela (*Terminalia bellerica* Roxb.), Sana (*Cassia angustifolia* Vahl.), Maweez Munakka (*Vitis vinifera* Linn.).

**A.) Pharmacognostical Observation (Powder microscopy)**

Round shaped pollen grains (**Gul-e-surkh**); group of stone cells, beak shaped stone cells, sclereids (**Post-e-halela zard**); Stone cells with broad lumen, Sclerenchyma cells, sclereids (**Post-e-halela kabuli**); Fibre, Vessels having pitted thickenings, Prismatic crystals (**Shahatra**); Epidermal hair with swollen base (**Post-e-balela**); Unicellular hairs (**Sana**); Vessels with spiral thickenings (**Maweez Munakka**). (Fig-1A-L)

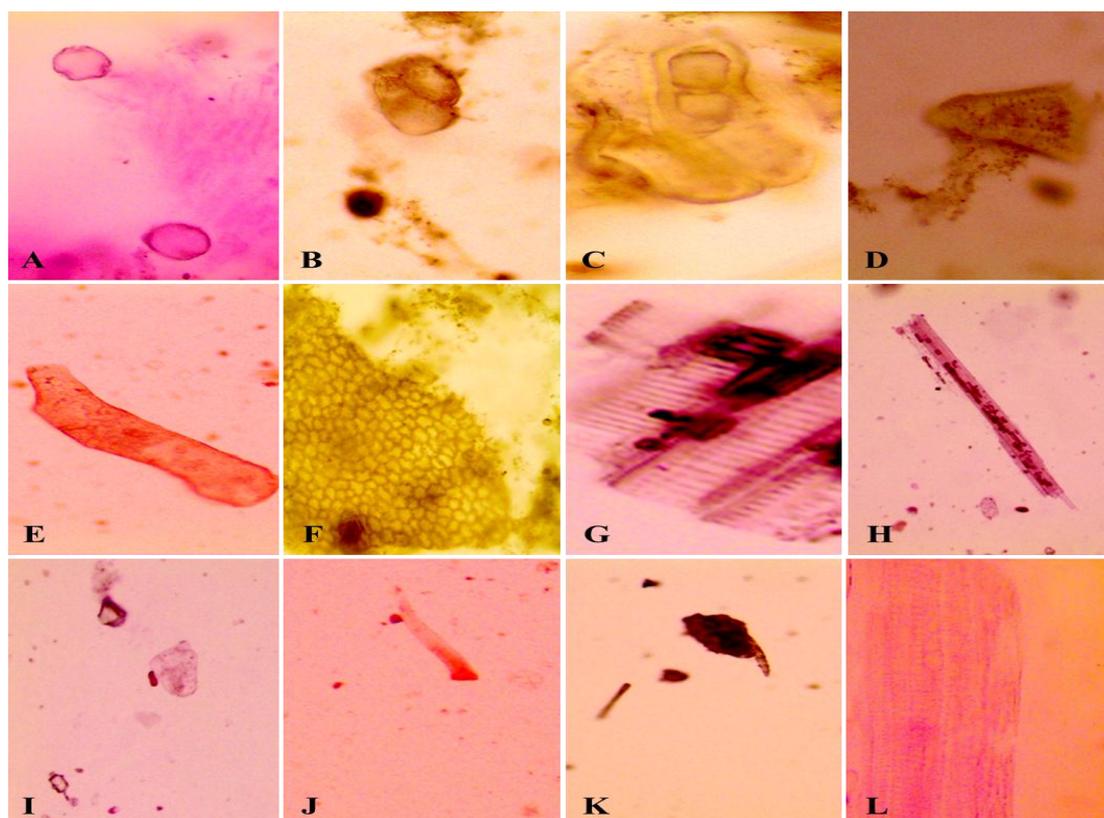


Fig.1 (A-L): Powder microscopy of Itrifal Shahtara.

A. Pollen grains (Gul-e-surkh)	40x
B. Group of stone cells (Halela zard)	10x
C. Beak shaped sclereids (Post e halela zard)	40x
D. Stone cells (Post e Halela Kabli)	20x
E. Sclereids with broad lumen (Halela Kabuli)	20x
F. Sclerenchyma cells (Post e halela Kabuli)	20x
G. Vessels with spiral thickenings (Shahatra)	20x
H. Fiber (Shahatra)	10x
I. Prismatic crystals (Shahatra)	20x
J. Epidermal hair (Balela)	20x
K. Unicellular hair (Sana)	10x
L. Spiral vessels (Maweez munakka)	40x

### B.) Physicochemical analysis<sup>[7]</sup>

The physico-chemical analysis viz., moisture content, extractive values, ash values and pH value were analyzed (table - 1).

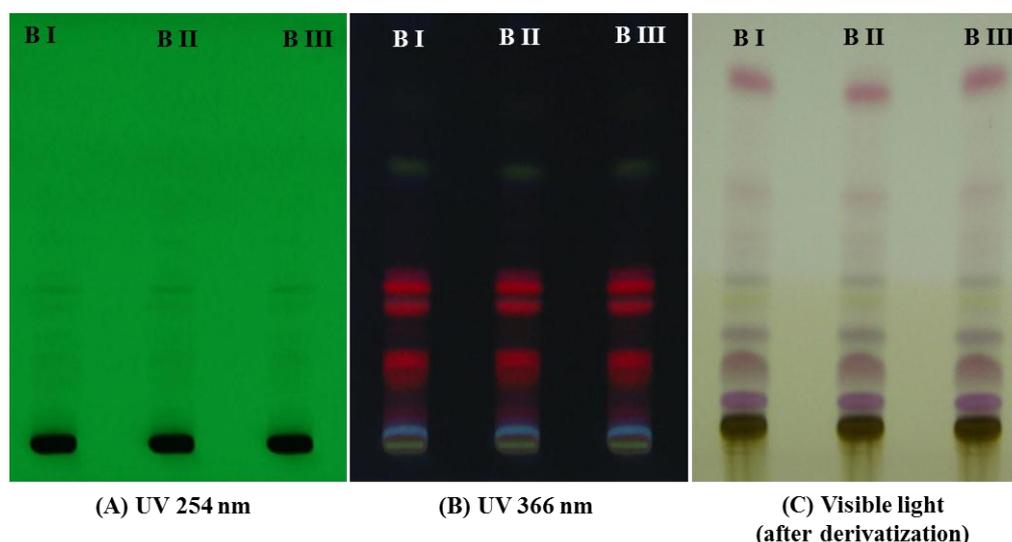
**Table-1**

S.No.	Parameters	Values <sup>1</sup>
1.	Ethanol Soluble Extractive (%)	39.28-39.60 %
2.	Water Soluble Extractive (%)	50.02-61.16%
3.	Total Ash (%)	4.18-4.34%
4.	Water soluble ash (%)	0.82-0.90%
5.	Acid insoluble ash (%)	0.81-1.82%
6.	pH of 1% aqueous solution	4.85%
7.	pH of 10% aqueous solution	4.20%

### C.) HPTLC Profile

HPTLC was carried out by applying the ethanol extract (Batch I, II, III) on pre-coated Aluminum TLC plate of silica gel 60 F<sub>254</sub>. A band of 10µl of ethanol extract was applied on TLC plate by employing Desaga AS30 automatic sample applicator. The plate was developed to a distance of 8cm using solvent system Toluene: Ethyl

acetate (9: 1) as mobile phase. It was air-dried and examined under UV 254 nm & 366 nm. Finally, the plate was derivatized by dipping it in 1% Vanillin – Sulphuric acid reagent followed by heating at 105°C till the coloured bands appeared. The derivatized plate was observed under white light. (Fig-2 A-C)



**Fig. 2 (A-C): HPTLC of Ethanol extracts of Itrifal Shahtara.**

### CONCLUSION

It can be concluded that organoleptic parameters are not much reliable in identification of polyherbal formulation as the ingredients are powdered and mixed together for preparing compound formulation. The

present study therefore hold high significance as the microscopic features; various physico-chemical parameters, HPTLC profile etc. provide criteria for easy identification of the drug Itrifal Shahatra and

quality control analysis ensures the authenticity, quality and efficacy of the medicine,

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